

2. Amendments to the Claims:

A clean version of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR § 1.121(c)(3). This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) Method A method of manufacturing a device with having a magnetic layer-structure, the method comprising ~~the steps of:~~

[[-]] forming the magnetic layer-structure[[.]];

[[-]] heating the magnetic layer-structure with an electric current, ~~characterized in that~~ the electric current is comprising a current pulse having a duration such that no substantial heat transfer from the magnetic layer-structure to the an environment of the magnetic layer-structure takes place, so that ~~the a~~ temperature of ~~said the~~ environment before and after the current pulse is substantially the same; and

selecting a physical process in the magnetic layer-structure based on the current pulse, a duration and an amplitude of the current pulse being adapted to an activation energy of the selected physical process.

2. (Currently amended) Method The method as claimed in claim 1, ~~characterized in that~~ wherein the heat is transferred by means of heat conduction.

3. (Currently amended) Method The method as claimed in claim 1, ~~characterized in that~~ the electric current pulse is used to ~~select a wherein~~ selecting the physical process in the magnetic layer-structure comprises selecting a layer physical process in one magnetic layer of the magnetic layer-structure, based on the duration and amplitude of the current pulse ~~being adapted to the activation energy of this physical process.~~

4. (Currently amended) Method The method as claimed in claim [[3]] 1, characterized in that the selection of wherein selecting the physical process is improved by comprises increasing the amplitude of ~~the pulse~~ and decreasing the pulse duration of the current pulse.

5. (Currently amended) Method The method as claimed in claim 1, characterized in that wherein the electric current comprises a sequence of current pulses, which is applied without substantial heat transfer from the magnetic layer-structure to its the environment.

6. (Currently amended) Method The method as claimed in claim 1, characterized in that wherein the device (1) is comprises a magnetoresistive device.

7. (Currently amended) Method The method as claimed in claim 6, characterized in that wherein the device is a sensing device.

8. (Currently amended) Method The method as claimed in claim 1, wherein the magnetic layer-structure comprises at least one bias layer, ~~characterized in that~~ the method further comprising:

applying a magnetic field is applied to the at least one bias layer during the short current pulse, which; and

switching off the magnetic field is ~~switched off~~ after the a temperature of the bias layer has ~~decreased~~ decreases to below the Néel or Curie temperature.

9. (Currently amended) Method ~~as claimed in claim 7~~ A method of manufacturing a magnetoresistive sensor device having a magnetic layer-structure, the method comprising:

forming the magnetic layer-structure; and

heating the magnetic layer-structure with an electric current, the electric current comprising a current pulse having a duration that prevents substantial heat transfer from the magnetic layer-structure to an environment of the magnetic layer-structure, so that a temperature of the environment before and after the current pulse is substantially the same,

wherein the magnetic layer-structure comprises a first bias layer having a first antiferromagnetic material with a first blocking temperature and a second bias layer having a having a second antiferromagnetic material with a second different blocking temperature different from the first blocking temperature, characterized in that first the a magnetization direction of the first or second antiferromagnetic material having the higher blocking temperature is being set and subsequently the before a magnetization direction is set of the first or second antiferromagnetic material having the lower blocking temperature is set.

10. (Currently amended) Method ~~The method~~ as claimed claim 1, ~~characterized in that~~ the wherein a duration of the electric current pulse is shorter than 100 ms.

11. (Currently amended) Method ~~The method~~ as claimed in claim 8, wherein the device is ~~used in the manufacture of~~ included in a magnetic system having ~~several~~ a plurality of magnetoresistive devices.

12. (Currently amended) Method ~~The method~~ as claimed in claim 11, ~~characterized in that wherein the magnetic system comprises~~ at least four magnetoresistive devices ~~are formed and, arranged in a Wheatstone bridge configuration.~~

13. (Currently amended) Method ~~as claimed in claim 11~~ A method of manufacturing a magnetoresistive bridge device of a magnetic system comprising a plurality of magnetoresistive bridge devices, the method comprising:
forming a magnetic layer-structure; and
heating the magnetic layer-structure with an electric current, the electric current comprising a current pulse having a duration that prevents substantial heat transfer from the magnetic layer-structure to an environment of the magnetic layer-structure, so that a temperature of the environment before and after the current pulse is substantially the same,

wherein that the current pulse is applied for offset compensation by irreversibly changing ~~the~~ a resistance of at least one of the magnetoresistive bridge devices through local heating.

14-15. (Cancelled).